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Therefore, this

United States Patent

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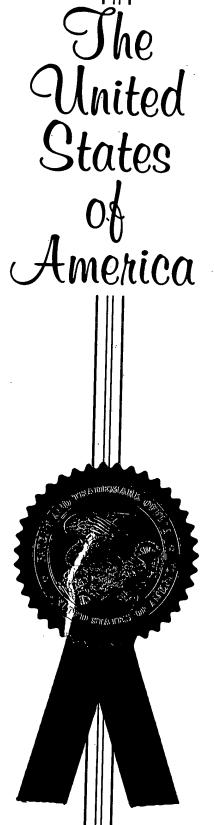
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Attest





United States Patent [19]

Crawford

3,751,077 4,116,477 [11] Patent Number:

5,791,693

[45] Date of Patent:

Aug. 11, 1998

[54]	PUP JOII RETENT	IT WITH INTEGRAL WING NUT ION SHOULDER						
[75]	Inventor:	Paul A. Crawford. Stephenville, Tex.						
[73]	Assignee:	FMC Corporation, Chicago, Ill.						
[21]	Appl. No.:	962,182						
[22]	Filed:	Oct. 31, 1997						
	Related U.S. Application Data							
[63]	Continuation doned.	of Ser. No. 651,646, May 22, 1996, aban-						
[51]	Int. Cl.6	F16L 19/025						
[52]	U.S. Cl	285/23 ; 285/354; 285/387;						
L J		285/388						
[58]	Field of Se	arch 285/23, 354, 386,						
		285/387, 388, 321						
[56]		References Cited						
	U.S	. PATENT DOCUMENTS						
1,	,186,021 6/	1916 Mezfger 285/388						

2,298,109 10/1942 Frank 285/388

8/1973 Hiszpanski 285/386

9/1978 Wahoski 285/386

4,124,234	11/1978	Clark	285/388				
4,575,044	3/1986	Gentry	285/388				
4,648,634	3/1987	Kelch	285/387				
4,877,270	10/1989	Phillips	285/387				
5,160,174	11/1992	Thompson	285/387				
5,362,109	11/1994	Pacnt	285/388				
TODATON D. TOTAL							

FOREIGN PATENT DOCUMENTS

723284	3/1980	U.S.S.R	285/387
17810	1/1914	United Kingdom	285/387

Primary Examiner—Eric K. Nicholson Attorney, Agent, or Firm—Henry C. Query, Jr.

[57] ABSTRACT

A pup joint is provided which comprises a length of pipe, a female sub integral with one end of the pipe and having external threads formed thereon, a male sub integral with the other end of the pipe, a wing nut for threadedly connecting the male sub to the female sub, a set of retainer segments for retaining the wing nut on the pup joint, and a retention shoulder formed on the male sub to maintain the wing nut and retainer segments on the male sub. In a preferred embodiment of the invention, the pipe and the male and female subs are comprised of a single forging, and the retention shoulder is formed by machining the male sub.

3 Claims, 2 Drawing Sheets

